1429

United States Department of Agriculture

Forest Service

Program Aid No. 1429

Managed Forests and Clean Water

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Managed Forests and Clean Water

American forests and woodlands supply us with wood products and high-quality water. We can continue to enjoy both when landowners or land managers use Best Management Practices to control nonpoint source pollution.

What Is Nonpoint Source Pollution?

Nonpoint source pollution is anything that harms the water quality of rivers, lakes, or streams where the source is not easily traceable to a specific location or point.

Because much of our well-being is related to clean water, nonpoint source pollution is a matter of deep concern to forest managers, water users, and the public. Water pollution threatens beneficial uses such as the drinking water supply, swimming, recreation, and fishing.

Potential nonpoint sources include agriculture, construction, forestry, mining, and urban runoff.

Causes of Nonpoint Source Pollution in Forestry

Forestry activities that expose mineral soil, require the application of chemicals, or remove shade from streams are potential sources or pollution. Many potential sources are common and necessary forest management activities.

Soil erosion is affected by the amount of soil exposed, topography, soil type, and rainfall intensity. Once eroded soil reaches water, it is called sediment.

In large concentrations, sediment is harmful to fish and other animals dependent on surface water for food or habitat. Sediment is also costly to remove from drinking water.

Activities such as road construction and maintenance, skidding or dragging logs, and mechanical brush removal cause soil disturbance.

The application of chemicals to increase growth, control undesirable growth, or control pests is another potential source of pollution.

In some areas, the removal of shade from streams can increase the water temperature to levels harmful to fish.

What Can Landowners Do?

Landowners and managers can use Best Management Practices (BMP's) to minimize nonpoint pollution. Most BMP's can easily be applied during management activities.

When BMP's are applied with care and common sense, they benefit each of us by protecting water quality and preserving the productive capacity of the land. They also provide direct benefits to landowners by reducing operation and maintenance costs.

Experimental watershed study.

BMP's for forestry have been developed and tested on experimental watersheds similar to the one at the Coweeta Hydrologic Laboratory in North Carolina, pictured above. Here a 1963 demonstration study was conducted that documented the effectiveness of BMP's in protecting beneficial uses of water.

What Are BMP's?

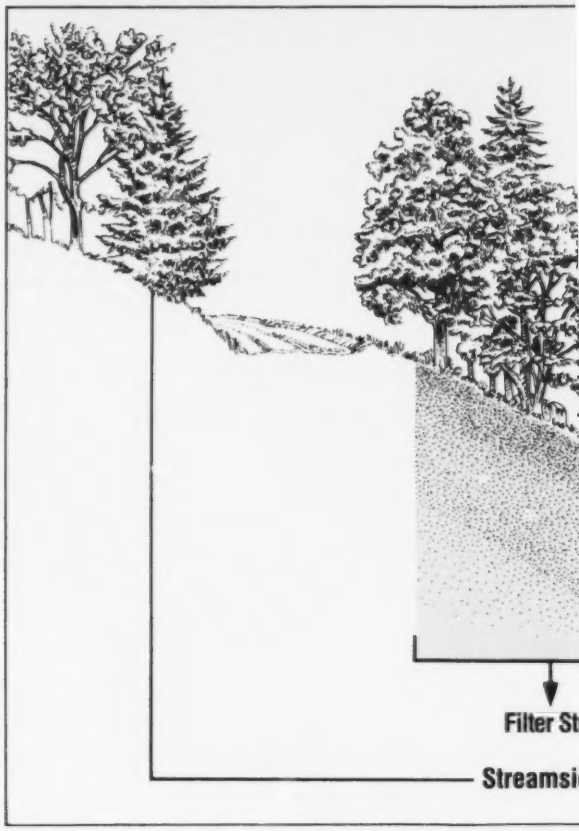
Best Management Practices (BMP's) are practical procedures designed to reduce pollution from nonpoint sources. They are developed and applied to fit the specific conditions of each location.

BMP's can be grouped into the following categories:

Streamside Management

Managing land near water to control nonpoint sources of pollution is especially important. Using properly designed culverts and bridges, limiting soil disturbance and chemical use, and providing filter strips between soil dis-

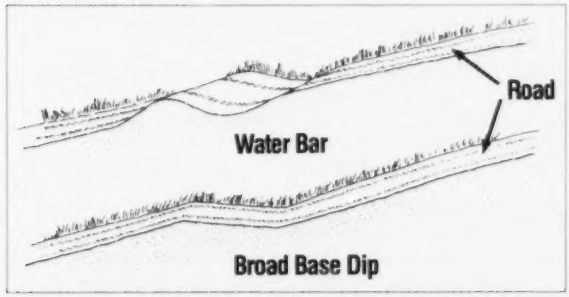
Streamside Management Area

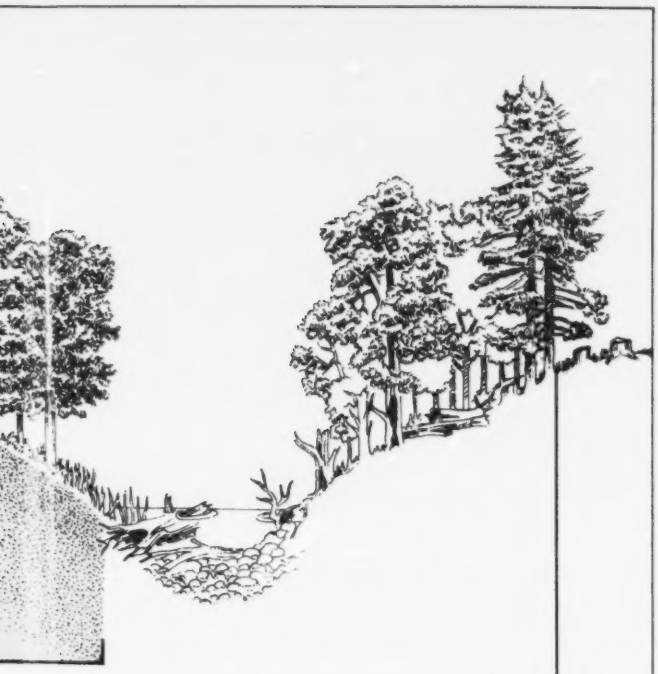


turbance and streams are some of the BMP's used in streamside areas.

In addition, vegetation in the entire streamside area

Water Control Practices





rip

de Management Area

can be maintained in a healthy condition to trap soil and chemicals washed from upland areas before they reach water.

Water Control

Draining water away from areas of bare soil and helping it soak into the soil are two principal ways to control erosion. Culverts, water bars, dips, and diversion ditches protect roads, tractor trails, and landings from running water. Contour furrows and holding ponds retain water and allow it to soak into the soil.

Often several practices are used in combination. For example, erosion control on hillsides is usually needed along with filter strips in streamside areas to adequately control nonpoint pollution.

Sources of more detailed information on BMP's are listed on the back.

Making BMP's Work

Selection and Application

Which practices are selected and how they are applied is dependent on each resource management situation. Management objectives, intensity of the project activities, site conditions, climate, and water quality goals are all considered in selecting and designing practices for specific activities. In addition, activities should be carefully planned to disrupt as little area as possible.

Seasonal considerations are very important. Wheel ruts, erosion, soil compaction, and operating costs are all reduced by conducting operations when the soil is dry.

Monitoring

First, the application of practices must be checked to assure proper installation. Then, the effectiveness of these practices should be evaluated at least visually on each activity. For example, frequent visual inspection of streams below a project is a good way to check for excess sediment.

Evaluation

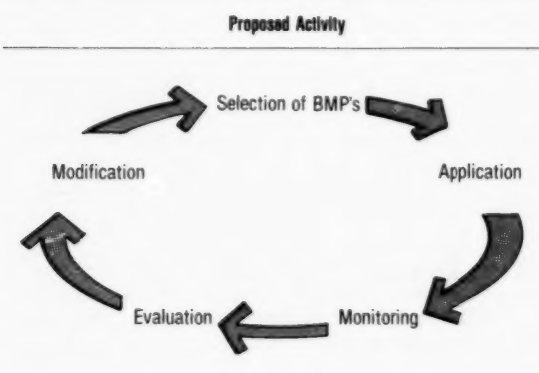
Monitoring results must be compared to water quality goals to determine if changes are needed.

Modification

BMP's or activities will need to be changed if water uses are harmed. Additional practices may be needed to assure the protection of our vital clean water.

As indicated in the following diagram, the BMP process requires continuous planning and monitoring of all activities. BMP's are selected for each activity and are modified as needed for current or future activities.

Diagram of BMP Process

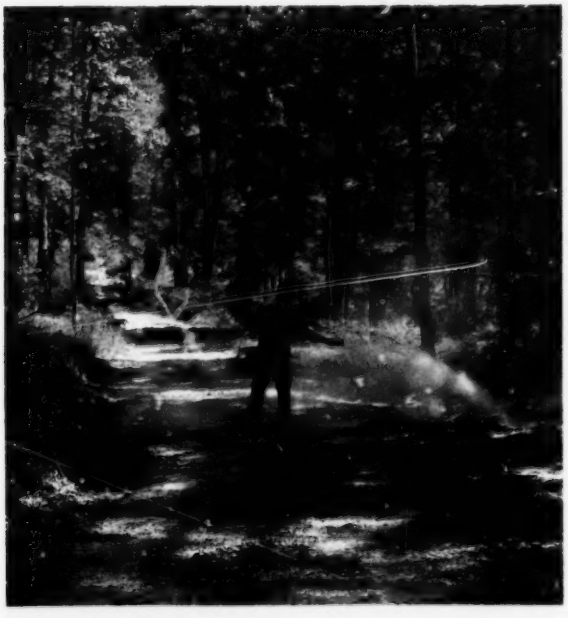


Maintenance

Erosion control practices must be maintained during and after management activities to assure their continued function. Culverts may become plugged or water bars worn down.

Road erosion.

When activities are complete, maintenance can be reduced by installing additional drainage and controlling traffic. Areas of exposed mineral soil should be revegetated where they are potential sources of sedimentation.



Applying lime before seeding.

Controlling Nonpoint Source Pollution Is in the Best Interest of Forest Landowners and Users

For specific information on BMP's and their application, contact the nearest office of the following agencies or individuals:

State forestry organizations
Soil Conservation Districts
Consulting foresters
County Extension Agents

Cooperators:

American Fisheries Society
American Forestry Association
American Forest Council
Association of Consulting Foresters
National Association of Conservation Districts
National Association of State Foresters
National Council of the Paper Industry for Air and Stream Improvement, Inc.
National Woodland Owners Association
Society of American Foresters
Soil and Water Conservation Society

United States Department of Agriculture:
- Extension Service
- Forest Service
- Soil Conservation Service

United States Department of the Interior:
- Bureau of Land Management